

I. Solve system of linear equations

$$3x - 2y = -2$$

$$x + 2y = -6$$

1. Solve the first equation for y (3points):

$$\begin{array}{r} 3x - 2y = -2 \\ -3x -3x \\ \hline -2y = -3x - 2 \\ \text{DIVIDE BY } (-2) \quad y = \left(\frac{3}{2}\right)x + 1 \end{array}$$

2. Solve the second equation for y (2 points):

$$\begin{array}{r} x + 2y = -6 \\ -x -x \\ \hline 2y = -x - 6 \\ \text{DIVIDE BY } 2 \quad y = -\frac{x}{2} - 3 \end{array}$$

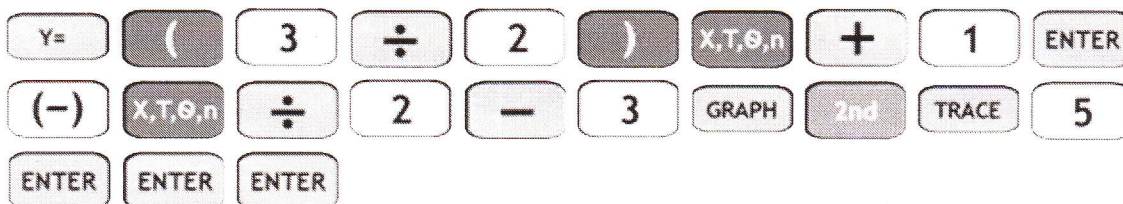
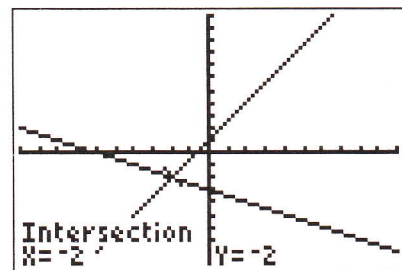
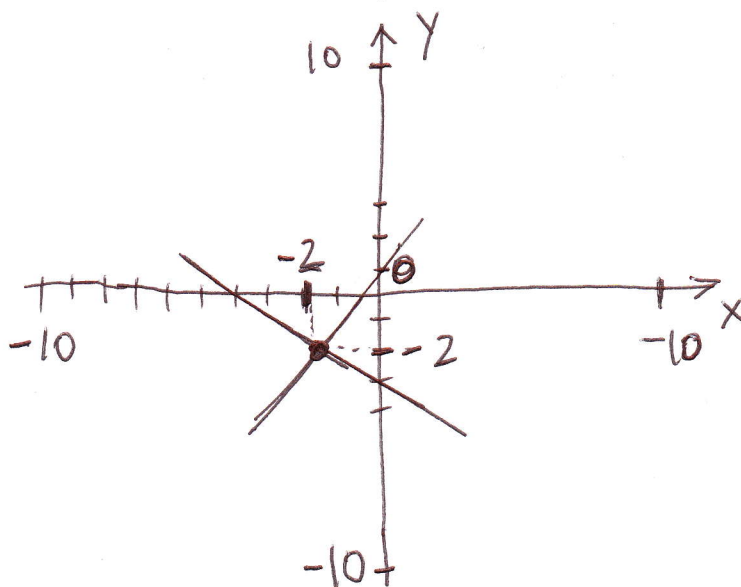
3. Enter both equations in your calculator, press GRAPH (ZOOM OUT or ZOOM IN if needed) and find coordinates of point of intersection. This is your solution.

Write down the solution below (10points) and show me the calculator screen (5points).

$$x = -2 \quad y = -2$$

4. Make a sketch of the calculator screen (5points)

Label horizontal axis (1point) and vertical axis (1point), circle point of intersection (1point), show X-coordinate of the point of intersection (1point), show Y-coordinate of the point of intersection (1point). On the sketch show the window limits (Xmin, Xmax, Ymin, Ymax, and 0) (5points)



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II. Classify the system of linear equations

$$3x - 2y = 9$$

$$2y - 3x = 6$$

1. Solve the first equation for y (3points):

$$\begin{aligned} 3x - 2y &= 9 \\ -3x &\quad -3x \\ \hline -2y &= -3x + 9 \\ y_1 &= \left(\frac{3}{2}\right)x - \frac{9}{2} \end{aligned} \quad \boxed{y_1 = m_1x + b_1}$$

2. Solve the second equation for y (3 points):

$$\begin{aligned} 2y - 3x &= 6 \\ - \quad +3x \quad +3x \\ \hline 2y &= 3x + 6 \\ y_2 &= \left(\frac{3}{2}\right)x + 3 \end{aligned} \quad \boxed{y_2 = m_2x + b_2}$$

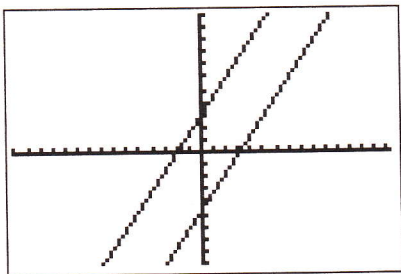
3. Classify the system (1point) and comment on the possible appearance of the graph (2 points) and the solution (2points)

SLOPES ARE EQUAL $m_1 = m_2 = \frac{3}{2}$
 y-intercepts ARE DIFFERENT $b_1 \neq b_2$
 $b_1 = -\frac{9}{2}$ $b_2 = 3$

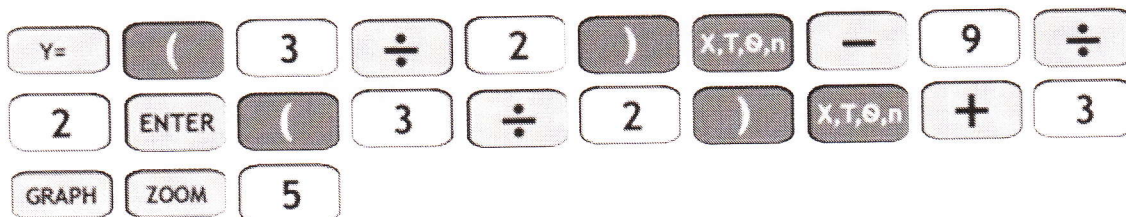
INCONSISTENT SYSTEM

PARALLEL LINES $m_1 = m_2$ DO NOT INTERSECT
 NO SOLUTION

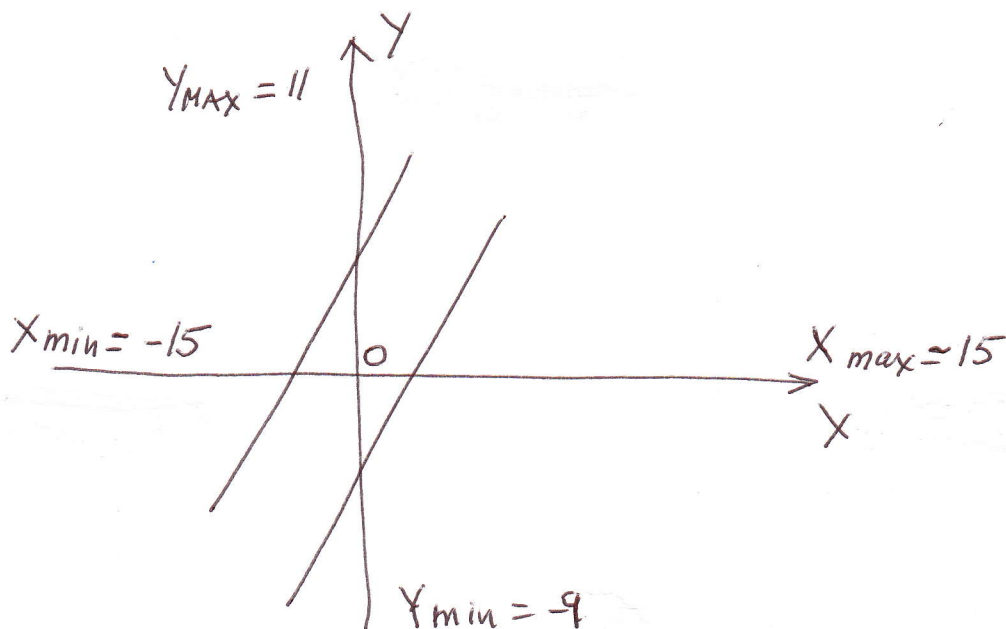
4. Enter both equations in your calculator, press GRAPH (ZOOM OUT or ZOOM IN if needed. Show me the window screen (5points))



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WINDOW
Xmin=-15.16129...
Xmax=15.161290...
Xscl=1
Ymin=-9
Ymax=11
Yscl=1
Xres=1
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5. Make a sketch of the calculator screen (5points). Label horizontal axis (1point) and vertical axis (1point), comment on appearance of the lines and the solution (3points). On the sketch show the window limits (X_{min} , X_{max} , Y_{min} , Y_{max} , and 0) (5points)



LINES ARE PARALLEL
DO NOT INTERSECT
NO SOLUTION

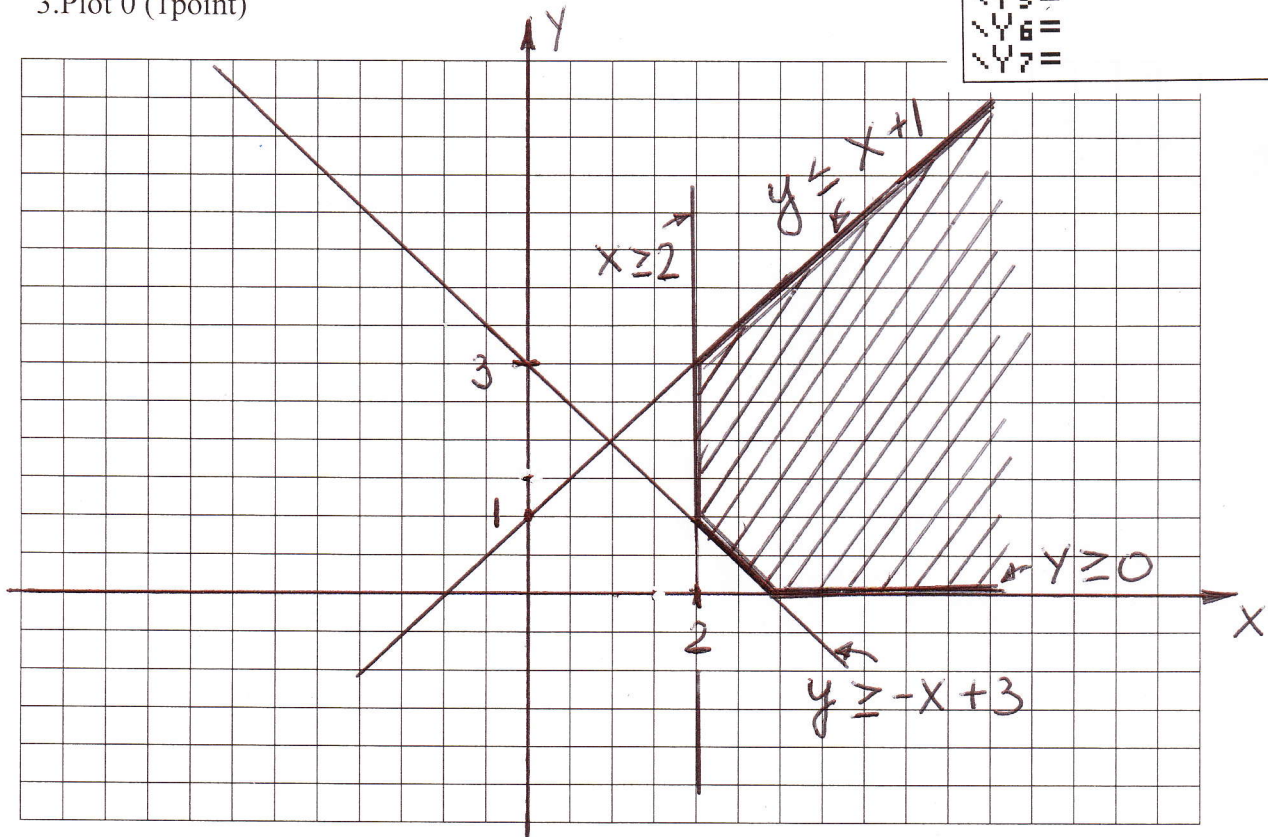
III. Graph system of linear inequalities

$$x \geq 2 \qquad y \geq 0 \qquad y \geq -x + 3 \qquad y \leq x + 1$$

1. Enter the 2nd, 3rd, and 4th inequalities in your calculator and show me the calculator screen (10 points)

Make a sketch of the calculator window plus the first inequality

1. Draw axis X (2points)
2. Draw axis Y (2points)
3. Plot 0 (1point)



4. Graph the first inequality (2point)
5. Graph the second inequality (2point)
6. Graph the third inequality (4points)
7. Graph the forth inequality (4points)
8. Neatly highlight the solution region (8points)

